



**THE DRINKING WATER  
INSPECTORATE**

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25 June 2009

To :

The Rt. Hon. Huw Irranca-Davies MP  
Minister for Marine and Environment,  
Department of the Environment Food  
and Rural Affairs

My report on drinking water quality will be published on the internet on 2 July 2009. It provides a comprehensive commentary on tests carried out during the calendar year of 2008 together with other important facts about the quality and safety of drinking water. The overarching purpose of my report each year is to provide an evidence-based platform for informed dialogue and decisions about drinking water quality. It also records delivery, by the Inspectorate, of drinking water and better regulation policies. I will be discussing the content of my report in July at five meetings in England and Wales, kindly hosted by the Consumer Council for Water. I place a high importance on these regular annual events which provide an essential reality check on public confidence in drinking water.

**Compliance with drinking water standards**

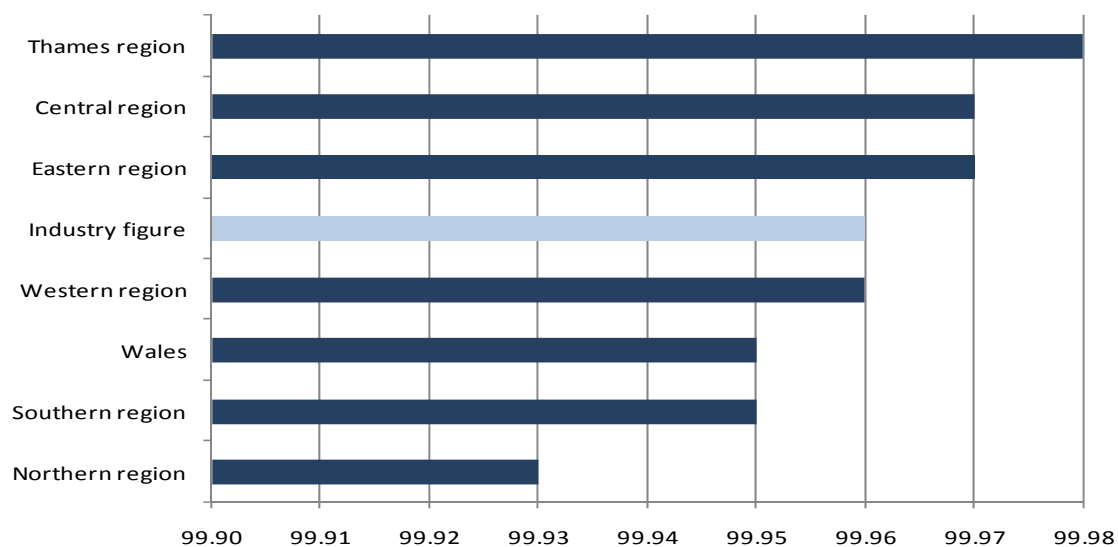
The overall results of drinking water quality testing in 2008 show that the water industry in England and Wales achieved 99.96% compliance with the European Drinking Water Directive. The figure for England was also 99.96% and the figure for Wales was 99.95%, an improvement on 2007. These results are comparable with the best presently reported in Europe by the Netherlands.

During the year the Inspectorate continued to work closely with its equivalents across Europe on comparable reporting arrangements for

drinking water quality. All European countries, including those in the UK, have identified and agree that ‘small water supplies’ are the most problematic, not just in terms of safety and security, but also in terms of competent management, reporting and regulation. The emergence of this consensus makes it inevitable that action to improve the safety of small water supplies in Europe will feature highly in the upcoming revision of the Drinking Water Directive. In the UK, Scotland and Northern Ireland already have improved private water supply regulations. In 2008, I advised that priority should be given to similar changes in England and Wales, a view fully supported by the Health Protection Agency. In particular I recommended the introduction of a risk-based approach founded on the World Health Organisation’s water safety plan methodology. In total there are 30,021 private supplies in England and Wales of which 2,540 supply more than 10m<sup>3</sup> per day. The risk posed by private water supplies is once again illustrated in my report this year by two incidents where a private water supply contaminated the public water supply through an illegal cross connection.

Looking more closely at the quality of public water supplies in England variations in compliance persist across the regions during 2008. The best tap water quality can be found in the Thames region (99.98%) closely followed by the Central and Eastern regions (99.97%). The lowest figures were reported in the Northern (99.93%) and Southern regions (99.95%). The Western region achieved the industry average figure of 99.96%. Wales improved and compliance is now comparable to that of the Southern region of England (99.95%).

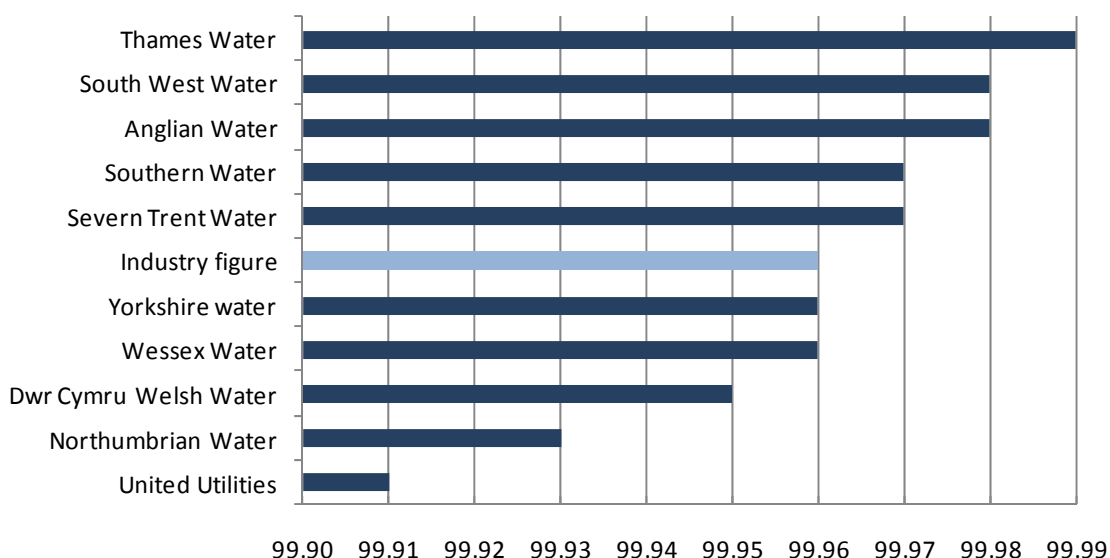
**Overall compliance<sup>1</sup> with Drinking Water standards for English regions and Wales**



<sup>1</sup> Compliance with 39 EU and National standards

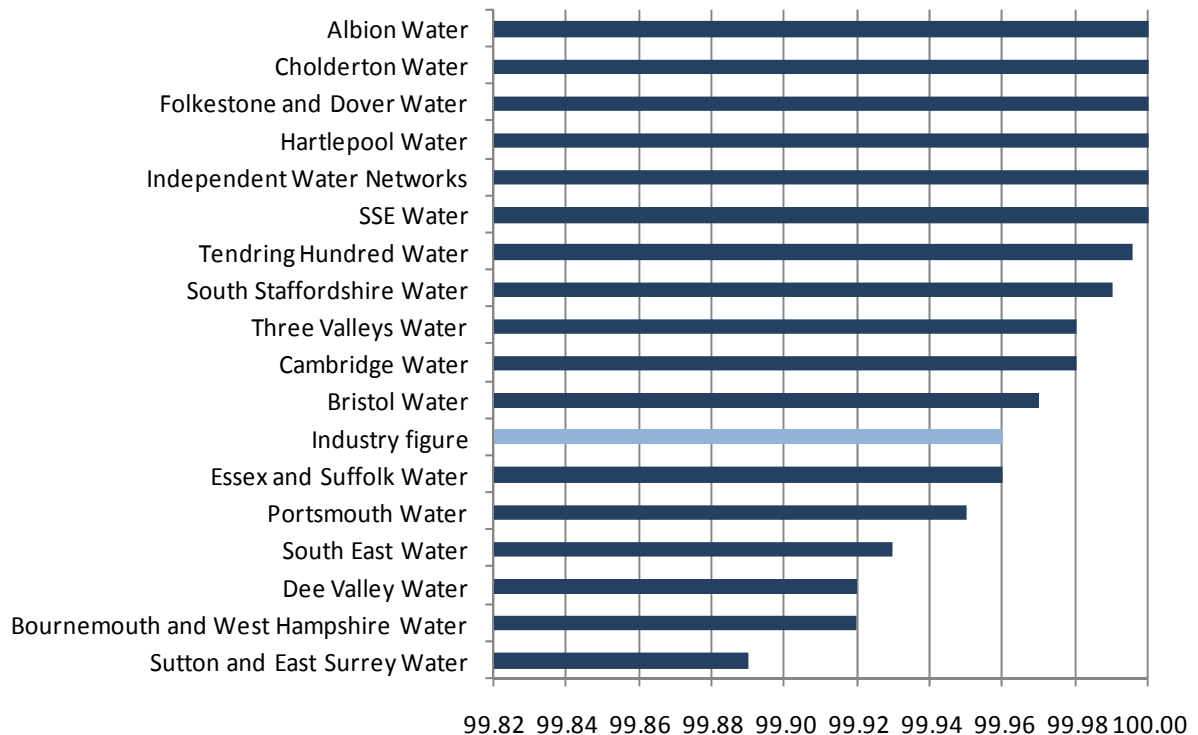
At water company level, six of the ‘combined water and sewerage’ companies achieved a better compliance record and the top performer was Thames Water with a figure of 99.99%, whereas the figures for Wessex Water were down on those reported in 2007 along with Northumbrian Water and United Utilities with these two companies being below the industry average. The figure for Dŵr Cymru Welsh Water in Wales was unchanged but also lies below the industry average.

**Compliance with drinking water standards for ‘combined water and sewerage’ companies**



Among the ‘water only’ companies and licensees, six small companies achieved 100% compliance, however, eight others reported a lower compliance figure in 2008 compared to 2007. Below the industry figure were Portsmouth Water, South East Water, Bournemouth and West Hampshire Water and Sutton and East Surrey Water, (99.89% – 99.95%). In Wales, Dee Valley Water also turned in a below average result. The purpose of these comparisons is to contribute to the forward risk-based work programme of my inspectors, thereby ensuring the Inspectorate’s resources are focused where improvement is most needed to secure clean, safe drinking water for all consumers.

## Compliance with drinking water standards for 'water only' companies



## Water supply management

There are several components of water supply management that are critical to delivering consumers with drinking water that is clean and safe. These are source water quality monitoring and protection, water treatment, maintenance of the network and effective advice and controls relating to plumbing and water fittings.

### *Water treatment*

Results at water treatment works in 2008 were mixed. Process control improved to 99.98% with figures for only four companies trending downwards. The lowest figures recorded were those of Southern Water (99.94%) and United Utilities (99.92%).

Offsetting the general improvement in process performance were the disinfection index figures. The year as a whole has been characterised by deficiencies in disinfection and, as a consequence, the overall industry figure declined from 99.94% in 2007 to 99.93% in 2008. Behind this figure lies a worrying downward trend in the individual figures for 13 companies. Those with below industry average figures were Bournemouth and West Hampshire Water, Dee Valley Water, Dŵr Cymru Welsh Water, South East Water, United Utilities and Yorkshire Water. During 2008, across all of the industry's 1,286 treatment works,

there were seven occasions when *E.coli* was detected, 78 samples contained coliform bacteria and on 120 occasions turbidity exceeded the specification. My report sets out the specific circumstances of these failures and the actions taken to protect consumers and prevent a recurrence. At the end of 2007, the Inspectorate was provided with new powers to deal with any persistent or serious disinfection failures and it is regrettable that a number of cases are already under consideration.

### *Service reservoirs*

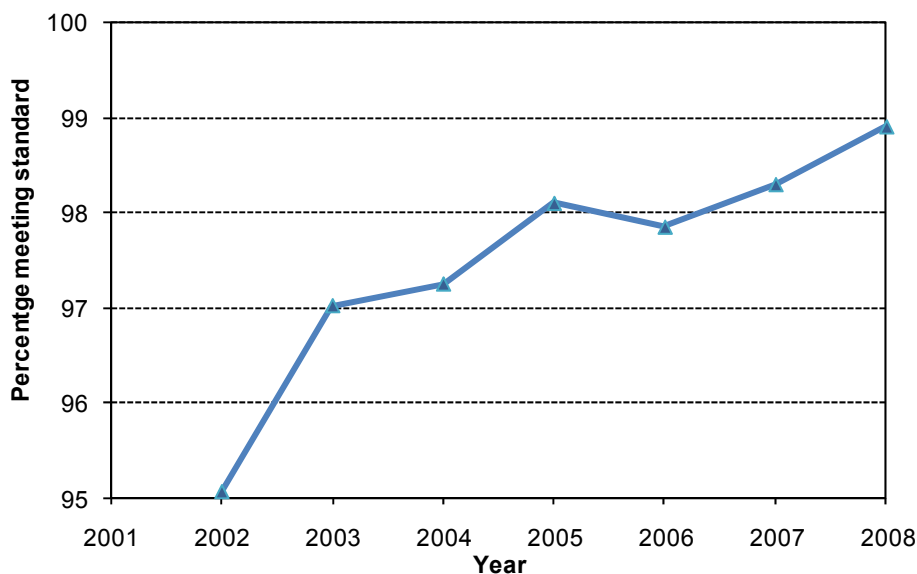
A pleasing highlight this year is the overall industry improvement in the quality of treated water stored in service reservoirs and water towers. The industry reservoir integrity index was up to 99.96% from a low of 99.93% in 2007. Only one company stood out as countering this upward trend and that was Northumbrian Water with a year-on-year deteriorating record from 99.94% in 2006 to 99.92% in 2008. During 2008 across all of the industry's 4,659 service reservoirs there were 23 occasions when *E.coli* was detected and 168 samples contained coliform bacteria. With only a few exceptions, my inspectors' assessments of these failures have verified that companies are acting more effectively to rectify the causes which comprise a mixture of structural defects and poorly designed or maintained sampling facilities. The better results this year justify my criticisms in 2006 and again in 2007 which led some companies to radically overhaul their regime of service reservoir maintenance to very good effect. For example, in 2008 Yorkshire Water attained a high reservoir integrity rating of >99.99%, up from a low of 99.90% in 2006 and now well above the industry average.

### *Tap water quality*

Improved for the first time in 2008 is the figure reflecting water quality parameters influenced by the design and condition of consumers' plumbing and water fittings. Tap water quality, as measured by this index, now stands at 99.87% up from 99.85%. The most common tap water quality failures are due to lead pipes and solder, old galvanised steel pipes, chrome plated plastic taps, a lack of good tap and kitchen hygiene and artificially softened drinking water. This improvement should encourage the industry to extend their efforts to raise householder awareness by promotion of the industry leaflet *Looking After Water in Your Home* developed last year. I am very pleased to record that Anglian Water has partnered the Inspectorate in an initiative to make advice on drinking water quality available to all expectant parents across the UK. The publication, *You and Your Family*, steered by the Royal College of Obstetricians and Gynaecologists is being distributed by midwife-led health units starting at the end of this month and will be available online from mid-July.

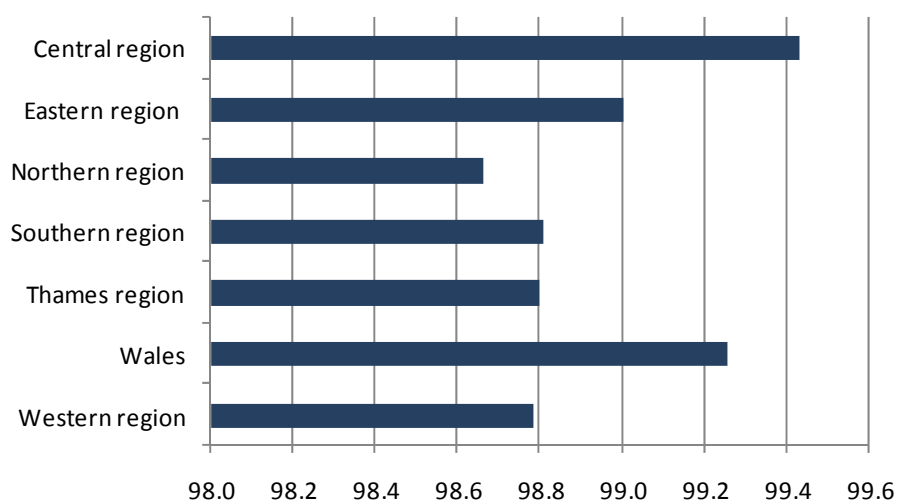
Turning to probably the most important tap water standard in terms of children's health, presented below is the updated picture of industry progress towards meeting the future standard for lead of  $10\mu\text{g}/\text{l}$  by 2013. This demonstrates the beneficial effect of the water treatment measures put in place since 2004.

**Percentage of samples meeting the future lead standard of  $10\mu\text{g}/\text{l}$  for the industry**



However water treatment is insufficient to achieve full compliance with this health based standard everywhere and where necessary companies have included in their final business plans (PR09) an integrated package of measures to address the residual risk. These measures include targeted lead communication pipe replacement in high risk areas, joint actions with local health professionals to address vulnerable consumers and generally to educate customers on the benefits of lead pipe replacement, opportunistic removal of lead communication pipes as part of pre-planned work on the distribution system and whenever a sample result fails the future lead standard of  $10\mu\text{g}/\text{l}$ . The figure below illustrates the regional position with regard to compliance with the future lead standard for English regions and Wales.

**Percentage of samples meeting the future lead standard (10µg/l) for English regions and Wales in 2008.**



**Consumer acceptability**

There has been a substantive step forward in the acceptability of drinking water to consumers in 2008. In the three-year period ending 2008, across the industry as a whole, consumer reports of 'dirty' water have fallen by 20% (from 87,517 to 70,648 in 2008). Additionally, fewer consumers had need to turn to the Inspectorate for help in resolving a drinking water quality complaint (80 compared to 130 in 2006). There continue to be problems in some areas of the south west and north of England and in parts of Wales where long-term mains rehabilitation programmes are not due for completion until late 2009. Nonetheless, the consumer evidence of benefit from the ten year investment in the mains network is now compelling. The next challenge for the industry is to maintain these improvements through continuous review and updating of their Distribution, Operation and Maintenance Strategies (DOMS). In those regions where mains renovation programmes came to an end in 2005, my inspectors have noted that some companies are not as effective as others in remedying localised problems flagged up by consumer contacts and water quality data. It is highlighted in the regional reports where my inspectors consider that action to maintain water quality through DOMS is not yet as good as it could or should be.

## Incidents

Notwithstanding the good quality of drinking water generally, I have to report that it has not been a good year in terms of the impact of water supply management on consumers. Inspectors this year classified 144 notified events as a water quality incident impacting on consumers. This compares unfavourably with the totals of 129 reported in 2007 and 98 in 2006. On its own, the absolute number of incidents per year is not a meaningful indicator, however, the three year consecutive rise in the number of incidents merits closer scrutiny.

In England, there were fewer incidents in the Northern region in 2008 (35 compared to 46 in 2007) although this region still has the highest number of incidents overall. The best record was achieved by companies in the Eastern region (8 incidents compared to 13 in 2007) and operating circumstances were stable in the Thames region (13 incidents compared to 14 in 2007). Set against this background it can be seen that the Inspectorate's attention in 2008 has been focussed on water supply management in Wales (22 incidents compared to 18 in 2007) and in the Central, Southern and Western regions of England (71 incidents compared to 39 in 2007). While occasional and unusual incidents impact on public confidence in drinking water due mainly to their novelty and the wide publicity they receive, what drives the concern of my inspectors is the emerging company specific evidence of repetition of incidents with the same cause or at the same location. Given this picture, the Inspectorate has toughened its stance towards those companies which fail to demonstrate unequivocally that they have learnt from all incidents across the industry. My report contains the findings, recommendations and enforcement action taken or being considered in respect of every incident.

During 2008 there were several unusual water quality incidents with industry-wide lessons to be learnt. One of these, at a works operated by Severn Trent Water, involved overdosing of fluoride. This went undetected because work being carried out to install new equipment was inadequately supervised. The independent investigation by my inspectors found that the company had failed to comply with many aspects of the 2005 Code of Practice on the Technical Aspects of Fluoridation. The company was required to address 14 recommendations to prevent a recurrence. In another case, the circumstances giving rise to a widespread precautionary boil water notice in the Northamptonshire area, served by Anglian Water, reinforced the critical importance of taking robust measures to keep wildlife out of water storage tanks. Although research commissioned after this incident by the Inspectorate is not yet complete, it is likely to show that up to 10% of wild rabbits carry a strain of *Cryptosporidium* capable of infecting humans. It is important therefore that Operations

Directors of companies satisfy themselves on a continuing basis that controls are adequate for each and every water storage tank, reservoir and tower.

Also, during 2008, 11 companies identified the active ingredient of slug pellets (metaldehyde) as a new pesticide hazard in some water sources. It was quickly identified that the levels found did not pose a risk to public health and the Inspectorate has initiated enforcement action to enable companies to develop and implement risk-based catchment management controls with the users, suppliers and regulators of pesticides. The Inspectorate expects companies to make use of the changes in the regulations to focus their monitoring resources on this and similar hazards where they will be most efficient and effective, for example, as part of their new Regulation 16A raw water monitoring programme and at supply points. The industry also needs to progress its parallel research on potential treatment solutions for implementation where catchment management solutions prove impracticable.

### **Regulatory framework**

Changes to the regulations which came into force at the end of 2007 provided companies with a formal framework for risk assessment within which they can identify and document all actual and potential hazards arising anywhere in the water supply system from catchment to tap. Companies were required to submit Regulation 28 risk assessment reports by 1 October 2008. Across the industry as a whole there are now 796 risk assessments in place based on the water safety plan methodology advocated by the World Health Organisation. These changes implement Government better regulation policy in the context of drinking water quality regulation.

### **Numbers of Regulation 28 risk assessments in place in regions of England and Wales**

Area	Number of risk assessments in place
England	
Central region	30
Eastern region	93
Northern region	114
Southern region	209
Thames region	159
Western region	161
Wales	30

Based on these risk assessments, companies have included in their final business plans (PR09) the actions required to reduce or mitigate any unacceptable risks identified through this new regulatory framework in the medium to long term (Asset Management Plan period 2010 – 2015). The regional reports this year contain annexes showing the number of risk assessments in place in each local authority area.

Looking forward, my inspectors have commenced a detailed assessment of every company risk assessment to verify the methodology and the adequacy of the control measures in place to mitigate risks. Company risk assessment reports will increasingly become the common starting point for all of the work of an inspector whether the task they are engaged upon is auditing, compliance assessment or the investigation of incidents and consumer complaints. This change marks the delivery by the Inspectorate in collaboration with the water industry of Better Regulation Policy in the field of drinking water quality regulation.

A handwritten signature in black ink, appearing to read 'Jeni Colbourne', with a long horizontal line extending to the left and right of the name.

Professor Jeni Colbourne MBE

Chief Inspector of Drinking Water