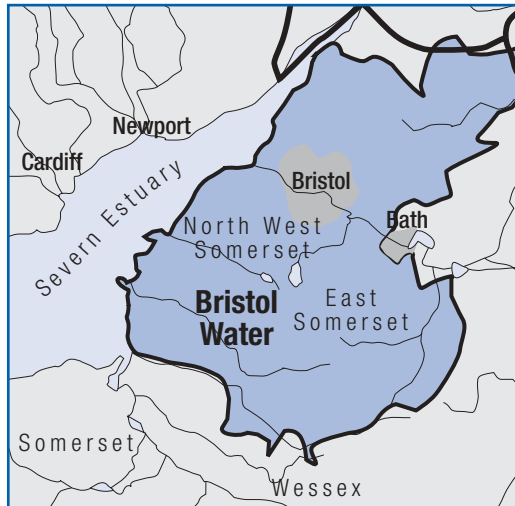


## 3 Bristol Water Plc

### Overall Water Quality supplied by Bristol Water Plc in 2002

- A total of 45,208 tests were carried out on samples taken by Bristol Water Plc in 2002.
- Of these tests, 99.89% complied with the Regulations.



#### Company Information

Amount of Water Supplied:	290 MI/d
Consumers Supplied:	1,086,000
Areas of Supply:	Bristol and surrounding parts of Somerset, Gloucestershire and Wiltshire
Water Composition:	75% from rivers and reservoirs 25% from boreholes and aquifers
Treatment Works:	17
Service Reservoirs:	182
Km of Mains:	6,500
Water Supply Zones:	52

### Water Quality at Treatment Works, in Service Reservoirs and in Water Supply Zones

To be wholesome, water must comply with the standards for the parameters set out in the Water Supply (Water Quality) Regulations 1989. In 2002, the Company carried out a total of 45,208 tests on samples taken at water treatment works, from service reservoirs and in water supply zones and of these, 99.89% complied with the relevant water quality standards set down in the Regulations. A list of the parameters, the relevant standards and their significance can be found at the beginning of this section.

#### Water Quality leaving Treatment works

	2002	2001	2000
<b>Number of water treatment works</b>	17	16	15
<b>COLIFORMS</b>			
<b>Total number of tests</b>	3,131	3,015	3,037
– number containing coliforms	0	1	5
– % containing coliforms	0.00%	0.03%	0.16%
<b>Treatment works with coliforms detected</b>	<b>0</b>	<b>1</b>	<b>4</b>
– % of all works with coliforms detected	0.00%	6.25%	26.67%
<b>FAECAL COLIFORMS</b>			
<b>Total number of tests</b>	3,131	3,015	3,035
– number containing faecal coliforms	0	0	0
– % containing faecal coliforms	0.00%	0.00%	0.00%
<b>Treatment works with faecal coliforms detected</b>	<b>0</b>	<b>0</b>	<b>0</b>
– % of all works with faecal coliforms detected	0.00%	0.00%	0.00%

There were no failures of either the coliform or faecal coliform standards at any of the Company's works in 2002. Differences over the last three years in the number of treatment works, and in the number of tests carried out on samples from treatment works, in which coliforms were detected were not considered significant.

In 2002, 1,506 regulatory samples for *Cryptosporidium* were taken at six sites. Very low numbers of oocysts were detected in 34 samples from three sites. All results were well below the treatment standard and there were no reported outbreaks of cryptosporidiosis.

### Water Quality in Service Reservoirs

	2002	2001	2000
<b>Number of service reservoirs</b>	182	184	181
<b>COLIFORMS</b>			
<b>Total number of tests</b>	9,212	9,375	9,117
– number containing coliforms	15	7	8
– % containing coliforms	0.16%	0.07%	0.09%
Service reservoirs with coliforms detected	15	6	7
<b>Service reservoirs with coliforms detected in more than 5% of tests</b>	<b>0</b>	<b>0</b>	<b>0</b>
– % of all service reservoirs	0.00%	0.00%	0.00%
<b>FAECAL COLIFORMS</b>			
<b>Total number of tests</b>	9,212	9,375	9,117
– number containing faecal coliforms	1	1	2
– % containing faecal coliforms	0.01%	0.01%	0.02%
<b>Service reservoirs with faecal coliforms detected</b>	<b>1</b>	<b>1</b>	<b>2</b>
– % of all service reservoirs with faecal coliforms detected	0.55%	0.54%	1.10%

There has been a significant increase since 2001 in the number of tests carried out on samples from service reservoirs in which total coliforms were detected. However, there were no failures of the coliform standard at any of the service reservoirs. The detection of faecal coliforms at one service reservoir was considered trivial.

### Water Quality in Water Supply Zones

The table below shows the data for the key parameters and any other parameters where there was a failure of the standard. All other parameters were fully compliant.

Parameter	Total number of tests	Tests not meeting the prescribed concentration or value		Number of failures covered by Undertakings	Number of zones not complying with the standards		
		No	%		2002	2001	2000
Coliforms	3,016	13	0.43	0	0	0	0
Faecal coliforms	3,016	1	0.03	0	1	2	0
Colour	253	0	0.00	0	0	0	0
Turbidity	254	0	0.00	0	0	0	0
Odour	243	0	0.00	0	0	0	0
Taste	243	0	0.00	0	0	0	0
Hydrogen ion	419	0	0.00	0	0	0	0
Nitrate	421	0	0.00	0	0	0	0
Nitrite	422	0	0.00	0	0	0	0
Aluminium	325	1	0.31	0	1	0	0
Iron	469	4	0.85	0	4	2	3
Manganese	440	0	0.00	0	0	1	0
Lead	213	0	0.00	0	0	0	0
PAH	307	14	4.56	2	6	10	8
Trihalomethanes	191	0	0.00	0	0	0	0
Total pesticides	313	0	0.00	0	0	0	0
Other pesticides	1,394	0	0.00	0	0	0	0
All others	7,077	0	0.00	0	0	0	0
<b>TOTAL</b>	<b>19,016</b>	<b>33</b>	<b>0.17%</b>	<b>2</b>			

52 zones in 2000, 2001 and 2002

The fifth column indicates the number of failures in zones already covered by legally binding undertakings given by the Company. These undertakings require remedial work to be carried out to ensure compliance with the individual standard.

## The New Regulations

In 2002, the Company carried out monitoring for the six new parametric values set down in the new Water Supply (Water Quality) Regulations 2000. These Regulations come into force on 25 December 2003. The results are shown in the table below.

Parameter	Total number of tests	New standard	Tests not meeting the new standard
Benzene	145	1.0 µg/l	0
Bromate	693	10.0 µg/l	86
1,2 dichloroethane	320	3.0 µg/l	0
Nitrite (ex-water treatment works)	1,526	0.1 mg/l	0
<i>Clostridium perfringens</i>	616	0/100 ml	0
Enterococci	206	0/100 ml	0

Improvement programmes are in hand to meet the new standard for bromate.

Compliance data for 2002 has also been analysed against the revised standards and the results are shown in the following table.

Parameter	Total number of tests	Current Standard	Number of tests not meeting current standard	Revised Standard	Number of tests not meeting revised standard
Antimony	52	10.0 µg/l	0	5.0 µg/l	0
Arsenic	132	50.0 µg/l	0	10.0 µg/l	0
Boron	52	2.0 mg/l	0	1.0 mg/l	0
Copper	53	3.0 mg/l	0	2.0 mg/l	0
Lead	213	50.0 µg/l	0	25.0 µg/l <sup>1</sup> 10.0 µg/l <sup>2</sup>	0 5
Nickel	52	50.0 µg/l	0	20.0 µg/l	0
Nitrite (at consumers' taps)	422	0.1 mg/l	0	0.5 mg/l	0
PAH	307	0.2 µg/l	14	0.1 µg/l	1
Tetrachloroethene	191	30.0 µg/l	0	} 10.0 µg/l	0
Trichloroethene	191	10.0 µg/l	0		

Details of the new and revised standards, and the reasons for the revisions where applicable, can be found in chapter J "New Regulations and Associated Programmes of Work".

1 from 25.12.03

2 from 25.12.13

## Company Audit and Inspection

The Company was inspected or audited by the Inspectorate or its appointed consultants on a number of occasions during 2002. Where relevant, report summaries are available in the ‘Business and Technical’ section of the Inspectorate’s web site under ‘Audit and Inspection’.

Audit or Inspection	Date
Audit of regulatory <i>Cryptosporidium</i> monitoring sites	Various dates throughout the year
Audit of regulatory <i>Cryptosporidium</i> sampler	January 2002
Audit of progress with regulatory programmes of work	March 2002
Review of progress with the distribution system undertaking	September 2002
Review of plumbosolvency treatment and control programmes of work	October 2002
Audit of selected response to consumer complaints	November 2002
Audit trails of Nitrate/Nitrite samples	November 2002
Audit trails of 10 test results	December 2002
Inspection of one water treatment works and two service reservoirs	December 2002
Audit of regulatory sampling practice	December 2002

A number of recommendations were made in respect of action required to avoid the risk of a breach of a regulatory duty. These recommendations were in relation to the regulatory programmes of work, the plumbosolvency programmes and the audit trails of the nitrite/nitrate samples.

## Incidents

The Inspectorate regarded two of the events notified during 2002 by the Company as incidents. For further details on the classification of incidents, see chapter C “Events affecting Water Quality” in Part 3.

Both incidents have been assessed by the Inspectorate. Each was of short duration and Bristol Water has taken appropriate remedial action.

During the 2002 reporting period, assessment was also completed for one incident which occurred in 2001.

Nature of incident	No. of incidents	Assessment completed affected	Area affected	Population potentially		
Microbiological contamination of supplies	2	Yes	Mangotsfield (August) and Banwell (October)	65 and 87,000 respectively		

## Enforcement Action

No enforcement action was considered for the Company as a result of the Inspectorate activities during 2002.

## **Improvement Programmes**

### **Water treatment works and service reservoirs**

Three Regulation 41 programmes of work to meet the new and revised standards set down in the new Water Supply (Water Quality) Regulations 2000 were due for completion in 2002. These were to install treatment at Littleton and Purton to remove bromate and at Stowey to remove arsenic. The programmes were completed on schedule.

No other improvement programmes were due for completion in 2002.

### **Distribution**

The ongoing distribution system undertaking has been progressing satisfactorily. During 2002, 82 km of mains have been renovated. Subject to post renovation assessment being satisfactory, the undertaking will be completed.

### **Lead**

The Company has a Regulation 41 programme of work to meet the revised standard for lead set down in the new Water Supply (Water Quality) Regulations 2000, which will come into force on 25 December 2003. Progress with the delivery of the programmes is monitored by the Inspectorate and has been satisfactory.