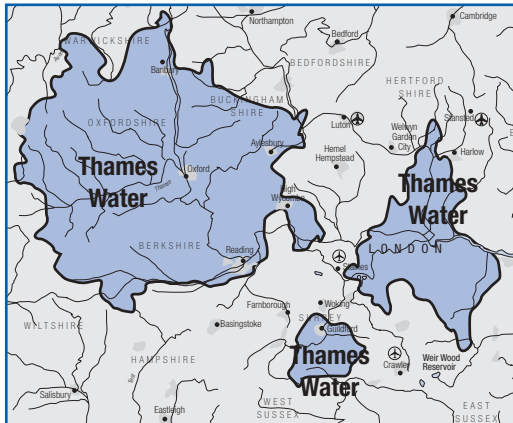


21 Thames Water Utilities Limited

Overall Water Quality supplied by Thames Water Utilities Limited in 2002

- A total of 542,555 tests were carried out on samples taken by Thames Water Utilities Limited in 2002.
- Of these tests, 99.92% complied with the Regulations.



Company Information

Amount of Water Supplied:	2,850 Ml/d
Consumers Supplied:	7.9 million
Areas of Supply:	London and a large proportion of central southern England.
Water Composition:	75% from rivers and reservoirs 25% from boreholes and aquifers
Treatment Works:	101
Service Reservoirs:	367
Km of Mains:	31,400
Water Supply Zones:	244

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 542,555 tests on samples taken at water treatment works, from service reservoirs and in water supply zones and of these, 99.92% 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
Number of water treatment works	101	101	99
COLIFORMS			
Total number of tests	15,434	16,046	18,816
– number containing coliforms	9	18	32
– % containing coliforms	0.06%	0.11%	0.17%
Treatment works with coliforms detected	9	16	23
– % of all works with coliforms detected	8.91%	15.84%	23.23%
FAECAL COLIFORMS			
Total number of tests	15,437	16,046	18,816
– number containing faecal coliforms	0	1	1
– % containing faecal coliforms	0.00%	0.01%	0.01%
Treatment works with faecal coliforms detected	0	1	1
– % of all works with faecal coliforms detected	0.00%	0.99%	1.01%

Failures of the coliform standard at nine works in 2002 were considered trivial. There were no failures of the faecal coliform standard. 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 or faecal coliforms were detected were not considered significant.

In 2002, 6,086 regulatory samples for *Cryptosporidium* were taken at 20 sites. Very low numbers of oocysts were detected in 122 samples from 13 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
Number of service reservoirs	367	372	371
COLIFORMS			
Total number of tests	19,409	19,182	18,730
– number containing coliforms	26	37	57
– % containing coliforms	0.13%	0.19%	0.30%
Service reservoirs with coliforms detected	20	33	50
Service reservoirs with coliforms detected in more than 5% of tests	2	0	3
– % of all service reservoirs	0.54%	0.00%	0.81%
FAECAL COLIFORMS			
Total number of tests	19,412	19,182	18,730
– number containing faecal coliforms	2	2	3
– % containing faecal coliforms	0.01%	0.01%	0.02%
Service reservoirs with faecal coliforms detected	2	2	3
– % of all service reservoirs with faecal coliforms detected	0.54%	0.54%	0.81%

There were failures of the coliform standard at two service reservoirs. There was also a failure of the faecal coliform standard at one of these reservoirs. However, the Company has taken action to prevent the failures recurring. There has been a significant decrease over the last three years in the number of service reservoirs and in the number of tests carried out on samples taken from service reservoirs in which total coliforms were detected. All other differences were not considered significant.

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	20,675	213	1.03	2	3	2	4
Faecal coliforms	20,682	11	0.05	0	11	12	9
Colour	2,247	0	0.00	0	0	0	0
Turbidity	2,284	0	0.00	0	0	0	1
Odour	1,132	1	0.09	0	1	1	1
Taste	1,110	0	0.00	0	0	0	0
Hydrogen ion	3,268	0	0.00	0	0	0	0
Nitrate	2,350	5	0.21	3	4	3	2
Nitrite	2,795	94	3.36	0	31	24	40
Aluminium	2,358	2	0.08	0	2	1	1
Iron	2,957	6	0.20	5	4	9	6
Manganese	2,290	0	0.00	0	0	1	0
Lead	1,415	7	0.49	0	6	6	4
PAH	1,226	28	2.28	0	19	8	15
Trihalomethanes	1,038	0	0.00	0	0	0	0
Total pesticides	27,391	0	0.00	0	0	0	0
Diuron	16,792	0	0.00	0	0	6	0
Other pesticides	311,480	0	0.00	0	0	0	0
Benzo 3.4 Pyrene	1,226	2	0.16	0	1	0	1
Phosphorus	257	0	0.00	0	0	1	0
Tetracholoethene	1,038	1	0.10	0	0	0	0
Zinc	1,411	1	0.07	0	1	0	1
All others	39,355	0	0.00	0	0	0	0
TOTAL	466,777	371	0.08%	10			

244 zones in 2002, 244 zones in 2001 and 236 zones in 2000

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	465	1.0 µg/l	0
Bromate	482	10.0 µg/l	0
1,2 dichloroethane	465	3.0 µg/l	0
Nitrite (ex-water treatment works)	488	0.1 mg/l	0
<i>Clostridium perfringens</i>	108	0/100 ml	0
Enterococci	1,145	0/100 ml	4

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

Parameter	Total number	Current standard	Number of tests not meeting current standard	Revised standard	Number of tests not meeting revised standard
Antimony	251	10.0 µg/l	0	5.0 µg/l	0
Arsenic	251	50.0µg/l	0	10.0 µg/l	0
Boron	251	2.0 mg/l	0	1.0 mg/l	0
Copper	1,412	3.0 mg/l	0	2.0 mg/l	2
Lead	1,415	50.0 µg/l	7	25.0 µg/l ¹	32
				10.0 µg/l ²	118
Nickel	251	50.0 µg/l	0	20.0 µg/l	0
Nitrite (at consumers' taps)	2,795	0.1 mg/l	94	0.5 mg/l	0
PAH	1,226	0.2 µg/l	28	0.1 µg/l	1
Tetrachloroethene	1,037	10.0 µg/l	1	} 10.0 µg/l	1
Trichloroethene	1,037	30.0 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
Audit of regulatory <i>Cryptosporidium</i> samplers	January 2002
Unannounced Inspection of laboratory analysing for <i>Cryptosporidium</i>	February 2002
Audit of progress with regulatory programmes of work	March 2002
Review of the distribution system undertaking	August 2002
Audit trails of 15 test results	September 2002
Audit of sampling arrangements	September 2002
Inspection of one water treatment works and one service reservoir	October and November 2002
Audit of response to selected consumer complaints	November 2002
Review of plumbosolvency treatment and control programmes of work	November 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 audit trails, the operation of treatment works and service reservoirs, the programmes of work and plumbosolvency treatment for lead.

Incidents

The Inspectorate regarded seven 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.

All of the incidents have been assessed by the Inspectorate. Each was of short duration and Thames Water has taken appropriate remedial action. A number of recommendations were made regarding procedures and the operation of valves.

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	
Supply of discoloured water	4	Yes	Edmonton (March)	1,250	
			Parts of Swindon (April)	1,500	
			Parts of Reading (April)	1,500	
			Parts of Bromley (January)	130	
Visual/Chemical contamination of supplies	2	Yes	Winnersh (April)	2	
			Parts of Croydon (October)	125	
Failure of disinfection	1	Yes	Parts of Gloucestershire around Mickleton and Paxford (July)	7,800	

Enforcement Action

The table below indicates areas where, in 2002, the Inspectorate considered taking enforcement action for regulatory breaches, and where an undertaking was submitted or where the Company took appropriate action.

Parameter/Area	Regulation breached	Location	Outcome
Lead	3(3)(c)	City of London water supply zone	Remedial action taken
Iron, manganese and turbidity	3(3)(c)	Spencer Wood & Winnersh water supply zones	Remedial action taken

Undertakings and other Improvement Programmes

Water treatment works and service reservoirs

Two undertakings were due for completion during 2002. These were to carry out improvements in Brixton water supply zone for total coliforms and install treatment at Worsham for nitrate. The programmes were completed on schedule.

One Regulation 41 programme of work to meet the new and revised standards set down in the new Water Supply (Water Quality) Regulations 2000 was due for completion in 2002. This was to install treatment at Southfleet to remove nitrate. The programme was completed on schedule.

Four statements of intent to reduce the risk of *Cryptosporidium* breaching the treatment standards were due for completion during 2002. One programme was completed on schedule. One programme was not completed because the Company had reviewed the risk and determined action was not required. The classification of the other two sites remains under consideration.

No other improvement programmes were due for completion during 2002.

Distribution

The distribution system undertaking was completed during 2002. During 2002, 90.4 km of mains have been renovated.

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 programme is monitored by the Inspectorate and has been satisfactory.