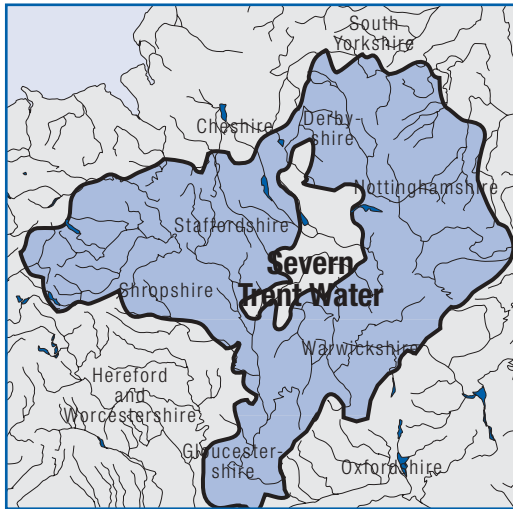


14 Severn Trent Water Limited

Overall Water Quality supplied by Severn Trent Water Limited in 2002

- A total of 282,799 tests were carried out on samples taken by Severn Trent Water Limited in 2002.
- Of these tests, 99.91% complied with the Regulations.



Company Information

Amount of Water Supplied:	2,000 MI/d
Consumers Supplied:	7.36 million
Areas of Supply:	The region stretches from the Humber Estuary in the north to Bristol Channel in the south, Llyn Clywedog in Wales in the west and Lincolnshire in the east.
Water Composition:	65% from rivers and reservoirs 35% from boreholes and aquifers
Treatment Works:	162
Service Reservoirs:	605
Km of Mains:	41,000
Water Supply Zones:	285

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 282,799 tests on samples taken at water treatment works, from service reservoirs and in water supply zones and of these, 99.91% 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	162	179	164
COLIFORMS			
Total number of tests	15,009	14,551	15,571
– number containing coliforms	15	9	15
– % containing coliforms	0.10%	0.06%	0.10%
Treatment works with coliforms detected	10	7	11
– % of all works with coliforms detected	6.17%	3.91%	6.71%
FAECAL COLIFORMS			
Total number of tests	15,009	14,551	15,571
– number containing faecal coliforms	1	1	0
– % containing faecal coliforms	0.01%	0.01%	0.00%
Treatment works with faecal coliforms detected	1	1	0
– % of all works with faecal coliforms detected	0.62%	0.56%	0.00%

Failures of the coliform standard at nine works in 2002 were considered trivial. Coliform and faecal coliform failures at the remaining treatment works are covered by an undertaking. 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, 2,908 regulatory samples for *Cryptosporidium* were taken at eight sites. Very low numbers of oocysts were detected in 15 samples from five 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	605	623	614
COLIFORMS			
Total number of tests	31,213	31,324	31,241
– number containing coliforms	32	45	44
– % containing coliforms	0.10%	0.14%	0.14%
Service reservoirs with coliforms detected	32	39	37
Service reservoirs with coliforms detected in more than 5% of tests	0	0	0
– % of all service reservoirs with coliforms detected	0.00%	0.00%	0.00%
FAECAL COLIFORMS			
Total number of tests	31,213	31,324	31,241
– number containing faecal coliforms	6	3	4
– % containing faecal coliforms	0.02%	0.01%	0.01%
Service reservoirs with faecal coliforms detected	6	3	4
– % of all service reservoirs with faecal coliforms detected	0.99%	0.48%	0.65%

The failures of the coliform standard at 32 service reservoirs were considered trivial. The Company is taking action towards preventing failure recurring at six of these service reservoirs. Differences over the last three years in the number of service reservoirs, and in the number of tests carried out on samples from service reservoirs, in which coliforms or faecal coliforms were detected 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	19,598	93	0.47	23	0	0	0
Faecal coliforms	19,598	5	0.00	1	5	5	5
Colour	1,307	0	0.00	0	0	0	0
Turbidity	4,571	0	0.00	0	0	0	3
Odour	1,116	0	0.00	0	0	0	0
Taste	1,262	0	0.00	0	0	0	1
Hydrogen ion	1,554	0	0.00	0	0	0	0
Nitrate	5,287	1	0.02	0	1	1	0
Nitrite	1,542	5	0.32	0	3	2	2
Aluminium	1,589	1	0.06	0	1	3	2
Iron	5,619	37	0.66	16	25	23	20
Manganese	1,611	7	0.43	0	3	1	3
Lead	721	4	0.55	0	4	3	2
PAH	1,133	40	3.53	0	21	20	17
Trihalomethanes	684	0	0.00	0	0	0	0
Total pesticides	861	0	0.00	0	0	0	0
Other pesticides	54,794	0	0.00	0	0	0	0
Benzo 3,4 Pyrene	1,127	1	0.09	0	0	0	0
Sulphate	1,035	0	0.00	0	0	1	0
All others	62,438	0	0.00	0	0	0	0
TOTAL	187,447	194	0.10%	40			

285 zones in 2002, 285 zones in 2001, 286 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	692	1.0 µg/l	0
Bromate	341	10.0 µg/l	0
1,2 dichloroethane	692	3.0 µg/l	0
Nitrite (ex-water treatment works)	687	0.1 mg/l	0
<i>Clostridium perfringens</i>	258	0/100 ml	2
Enterococci	1,158	0/100 ml	0

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	255	10.0 µg/l	0	5.0 µg/l	0
Arsenic	255	50.0 µg/l	0	10.0 µg/l	6
Boron	255	2.0 mg/l	0	1.0 mg/l	0
Copper	291	3.0 mg/l	0	2.0 mg/l	0
Lead	721	50.0 µg/l	4	25.0 µg/l ¹ 10.0 µg/l ²	29 87
Nickel	267	50.0 µg/l	0	20.0 µg/l	0
Nitrite (at consumers' taps)	1,542	0.1 mg/l	5	0.5 mg/l	0
PAH	1,133	0.2 µg/l	40	0.1 µg/l	0
Tetrachloroethene	274	30.0 µg/l	0	} 10.0 µg/l	0
Trichloroethene	260	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> sampling sites	Various dates throughout the year
Audit of regulatory <i>Cryptosporidium</i> samplers	January 2002
Audit of laboratory analysing for <i>Cryptosporidium</i>	January 2002
Audit of progress with regulatory programmes of work	March 2002
Audit of sampling arrangements	September 2002
Inspection of one water treatment works and one service reservoir	September 2002
Review of distribution system undertaking	September 2002
Audit of response to selected consumer complaints	October 2002
Audit trails of 15 test results	November 2002
Inspection of <i>in situ</i> lining of mains	November 2002
Audit of analytical requirements for nitrate and nitrate	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 mainly in relation to the audit trails, *in situ* lining of mains, sampling arrangements and progress with regulatory programmes of work.

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 of the incidents have been assessed by the Inspectorate. Each was of short duration and the Company has taken appropriate remedial action. A number of recommendations were made on notification procedures.

The Inspectorate completed the assessment of one incident which occurred in 2000.

Nature of incident	No. of incidents	Assessment completed	Areas affected	Population potentially affected
Supply of discoloured water	2	Yes	Kempsey (April);	1,530
		Yes	Draycott (July)	2,860

Enforcement Action

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

Undertakings and other Improvement Programmes

Water treatment works and service reservoirs

One undertaking was due for completion during 2002. This was to install treatment at Strensham to remove lead. The programme was completed on schedule.

Two 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 Eyton and Oakley Farm to remove nitrate. One programme was completed on schedule. The other programme has been delayed because the preferred treatment solution was still progressing through the Regulation 25 approval process.

Nine statements of intent to reduce the risk of *Cryptosporidium* breaching the treatment standards were due for completion during 2002. Five of these schemes were delivered during 2002, and two others were substantially completed. The remaining schemes will be delivered in 2003.

One statement of intent for parameters other than *Cryptosporidium* was due for completion during 2002. This programme was completed on schedule.

Distribution

The ongoing distribution system undertaking has been progressing satisfactorily. During 2002, 430 km of mains have been renovated. The Company is required to renovate a further 583 km of mains by January 2004.

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.