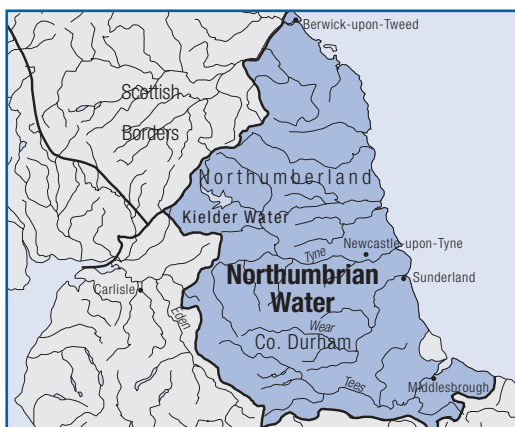


12 Northumbrian Water Limited

Overall Water Quality supplied by Northumbrian Water Limited in 2002

- A total of 247,139 tests were carried out on samples taken by Northumbrian Water Limited in 2002.
- Of these tests, 99.93% complied with the Regulations.



Company Information

Amount of Water Supplied:	760 MI/d
Consumers Supplied:	2.6 million
Areas of Supply:	North east of England
Water Composition:	95% from rivers and reservoirs 5% from boreholes and aquifers
Treatment Works:	37
Service Reservoirs:	244
Km of Mains:	16,687
Water Supply Zones:	112

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 247,139 tests on samples taken at water treatment works, from service reservoirs and in water supply zones and of these, 99.93% 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	37	36	41
COLIFORMS			
Total number of tests	7,056	6,898	7,027
– number containing coliforms	2	2	6
– % containing coliforms	0.03%	0.03%	0.09%
Treatment works with coliforms detected	2	2	5
– % of all works with coliforms detected	5.41%	5.56%	12.20%
FAECAL COLIFORMS			
Total number of tests	7,056	6,898	7,027
– number containing faecal coliforms	1	1	2
– % containing faecal coliforms	0.01%	0.01%	0.03%
Treatment works with faecal coliforms detected	1	1	2
– % of all works with faecal coliforms detected	2.70%	2.78%	4.88%

Failures of the coliform standard at two works and the faecal coliform standard at one works in 2002 were considered trivial. 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, 3,245 regulatory samples for *Cryptosporidium* were taken at nine sites. Very low numbers of oocysts were detected in 23 samples from six 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	244	245	249
COLIFORMS			
Total number of tests	12,571	12,693	12,646
– number containing coliforms	23	26	29
– % containing coliforms	0.18%	0.20%	0.23%
Service reservoirs with coliforms detected	23	25	22
Service reservoirs with coliforms detected in more than 5% of tests	0	0	1
– % of all service reservoirs with coliforms detected	0.00%	0.00%	0.40%
FAECAL COLIFORMS			
Total number of tests	12,571	12,693	12,646
– number containing faecal coliforms	6	4	15
– % containing faecal coliforms	0.05%	0.03%	0.12%
Service reservoirs with faecal coliforms detected	6	4	11
– % of all service reservoirs with faecal coliforms detected	2.46%	1.63%	4.42%

There were no failures of the coliform standard at any of the service reservoirs. The detection of faecal coliforms at five service reservoirs were considered trivial. The detection of faecal coliforms at a sixth service reservoir is considered unlikely to recur as a result of remedial action taken by the Company. There was a significant decrease in the number of tests taken from service reservoirs over the last three years in which faecal 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	7,434	37	0.50	0	1	0	0
Faecal coliforms	7,434	4	0.05	0	4	2	5
Colour	7,432	1	0.01	0	1	1	5
Turbidity	7,432	7	0.09	2	6	5	4
Odour	964	1	0.10	0	1	0	1
Taste	958	2	0.21	0	2	2	1
Hydrogen ion	7,462	0	0.00	0	0	0	0
Nitrate	992	0	0.00	0	0	0	0
Nitrite	1,000	0	0.00	0	0	0	0
Aluminium	3,494	2	0.06	0	2	2	5
Iron	3,496	39	1.12	34	24	32	35
Manganese	3,494	16	0.46	10	13	8	10
Lead	1,717	6	0.35	0	6	11	12
PAH	470	1	0.21	0	1	1	1
Trihalomethanes	908	7	0.77	6	5	1	1
Total pesticides	2,492	3	0.12	0	3	0	0
Carbophenothion	2,412	0	0.00	0	0	1	0
Chlortoluron	2,547	2	0.08	0	2	0	1
Isoproturon	2,576	9	0.35	0	3	0	0
MCPA	2,446	0	0.00	0	0	0	24
Propyzamide	2,446	0	0.00	0	0	22	0
Other pesticides	110,696	0	0.00	0	0	0	0
Chromium	121	1	0.83	0	1	0	0
Phosphorus	1,326	3	0.23	0	3	0	0
Potassium	456	0	0.00	0	0	1	0
Sulphate	520	0	0.00	0	0	2	0
All others	21,915	0	0.00	0	0	0	0
TOTAL	204,640	141	0.07%	52			

112 zones in 2002, 112 zones in 2001, 111 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	143	1.0 µg/l	0
Bromate	392	10.0 µg/l	0
1,2 dichloroethane	143	3.0 µg/l	0
Nitrite (ex-water treatment works)	368	0.1 mg/l	0
<i>Clostridium perfringens</i>	186	0/100 ml	0
Enterococci	392	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	112	10.0 µg/l	0	5.0 µg/l	0
Arsenic	112	50.0 µg/l	0	10.0 µg/l	0
Boron	112	2.0 mg/l	0	1.0 mg/l	0
Copper	1,716	3.0 mg/l	0	2.0 mg/l	0
Lead	1,716	50.0 µg/l	6	25.0 µg/l ¹ 10.0 µg/l ²	17 81
Nickel	112	50.0 µg/l	0	20.0 µg/l	0
Nitrite (at consumers' taps)	1,000	0.1 mg/l	0	0.5 mg/l	0
PAH	470	0.2 µg/l	0	0.1 µg/l	0
Tetrachloroethene	898	30.0 µg/l	0	} 10.0 µg/l	0
Trichloroethene	906	10.0 µg/l			

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 progress with regulatory programmes of work	March 2002
Inspection of one water treatment works and one service reservoir	April & October 2002
Inspection of laboratory analysing for <i>Cryptosporidium</i>	May & September 2002
Audit of regulatory <i>Cryptosporidium</i> samplers	September 2002
Audit of Membrane Integrity Testing at five membrane plants	September 2002
Audit of sampling arrangements	October 2002
Audit of response to selected consumer complaints	October 2002
Review of distribution system undertaking	November 2002
Audit of analytical requirements for nitrate and nitrite	November 2002
Audit trails of ten test results	December 2002
Inspection of <i>in situ</i> lining of mains	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 audit trails, the treatment works, the analytical arrangements for nitrate and nitrite, procedures for the *in situ* lining of mains, *Cryptosporidium* analysis, and the distribution system undertaking.

Incidents

The Inspectorate regarded 14 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.

Thirteen 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 regarding sampling and procedures.

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

One incident assessment from 2002 remains under consideration.

Nature of incident	No. of incidents	Assessment completed	Area affected	Population potentially affected
Supply of discoloured water	7	Yes	Widderington (January)	9,750
			North Shields (February)	3,900
			Abbington (March)	14,000
			Blakelaw (June)	6,500
			Blakelaw (July)	6,500
			Houghton-le-Spring (August)	25,000
			Marden Estate (June)	11,050
Cramlington (September)	1	No		43,000
Issue of warning/advice	3	Yes	Amble (July)	2,000
			Gunnerton (August)	6,000
			Carrshields (August)	176
Wholesomeness concern	2	Yes	Acomb (August)	40
			Haswell (Co Durham) (March)	325
Loss of pressure/no water	1	Yes	Trimdon (June)	3,600

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
Individual Pesticides	3(3)(c)	Warkworth	Undertaking agreed

Undertakings and other Improvement Programmes

Water treatment works and service reservoirs

Five undertakings were due for completion during 2002. These were to install treatment at Broken Scar, Lartington, Wearhead and Tunstall to remove trihalomethanes and at Halton Le Gate for colour. Two of the programmes were completed on schedule, and revised undertakings have been accepted in respect of delays in the other three.

Five statements of intent to reduce the risk of *Cryptosporidium* breaching the treatment standards were due for completion during 2002. Two of the programmes were completed on schedule, one was delayed for reasons outside the company's control; in respect of the other two revised undertakings were accepted for the schemes.

No other improvement programmes were due for completion during 2002.

Distribution

The ongoing distribution system undertaking has been progressing satisfactorily. During 2002, 397 km of mains have been renovated. The Company is required to renovate a further 3,555 km of mains by December 2010.

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.