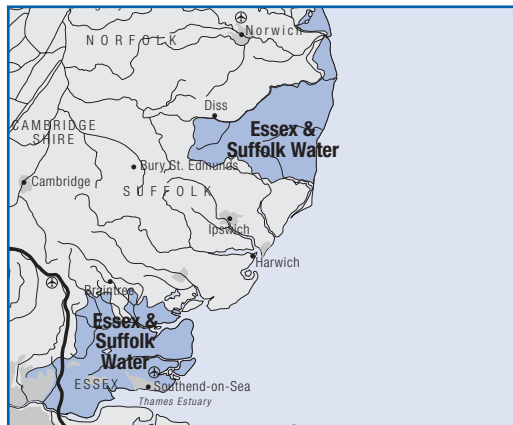


8 Essex and Suffolk Water Plc

Overall Water Quality supplied by Essex and Suffolk Water Plc in 2002

- A total of 120,728 tests were carried out on samples taken by Essex and Suffolk Water Plc in 2002.
- Of these tests, 99.93% complied with the Regulations.



Company Information

Amount of Water Supplied:	482 MI/d
Consumers Supplied:	1.7 million
Areas of Supply:	Essex, south Norfolk and north Suffolk
Water Composition:	95% from rivers and reservoirs 5% from boreholes and aquifers
Treatment Works:	25
Service Reservoirs:	106
Km of Mains:	8,393
Water Supply Zones:	66

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 120,728 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	25	25	26
COLIFORMS			
Total number of tests	4,066	4,133	4,192
– number containing coliforms	4	5	6
– % containing coliforms	0.10%	0.12%	0.14%
Treatment works with coliforms detected	3	3	4
– % of all works with coliforms detected	12.00%	12.00%	15.38%
FAECAL COLIFORMS			
Total number of tests	4,066	4,133	4,192
– number containing faecal coliforms	0	1	1
– % containing faecal coliforms	0.00%	0.02%	0.02%
Treatment works with faecal coliforms detected	0	1	1
– % of all works with faecal coliforms detected	0.00%	4.00%	3.85%

Failures of the coliform standard at three works in 2002 were considered trivial or unlikely to recur as a result of remedial action taken by the Company. 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, 1,392 regulatory samples for *Cryptosporidium* were taken at four sites. Very low numbers of oocysts were detected in two samples from two 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	106	104	110
COLIFORMS			
Total number of tests	5,228	5,178	5,402
– number containing coliforms	10	20	43
– % containing coliforms	0.19%	0.39%	0.80%
Service reservoirs with coliforms detected	9	17	31
Service reservoirs with coliforms detected in more than 5% of tests	0	0	5
– % of all service reservoirs with coliforms detected	0.00%	0.00%	4.55%
FAECAL COLIFORMS			
Total number of tests	5,228	5,178	5,402
– number containing faecal coliforms	1	0	3
– % containing faecal coliforms	0.02%	0.00%	0.06%
Service reservoirs with faecal coliforms detected	1	0	3
– % of all service reservoirs with faecal coliforms detected	0.94%	0.00%	2.73%

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. There has been a significant decrease since 2000 in the number of service reservoirs, and in the number of tests carried out on samples 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	4,464	24	0.54	0	0	0	0
Faecal coliforms	4,464	3	0.07	0	3	2	2
Colour	972	0	0.00	0	0	0	0
Turbidity	559	1	0.18	0	1	0	0
Odour	538	0	0.00	0	0	0	0
Taste	538	0	0.00	0	0	0	0
Hydrogen ion	972	0	0.00	0	0	0	0
Nitrate	2,116	0	0.00	0	0	0	0
Nitrite	2,068	23	1.11	0	8	13	26
Aluminium	559	1	0.18	0	1	0	0
Iron	1,489	4	0.27	3	4	1	3
Manganese	559	1	0.18	0	1	0	1
Lead	980	2	0.20	0	2	1	1
PAH	272	1	0.37	0	1	0	1
Trihalomethanes	332	0	0.00	0	0	0	0
Total pesticides	2,058	0	0.00	0	0	0	0
Carbetamide	1,949	11	0.56	0	11	0	0
Other pesticides	65,166	0	0.00	0	0	0	0
Nickel	77	0	0.00	0	0	1	0
Total Hardness	275	1	0.36	0	1	0	1
All others	10,341	0	0.00	0	0	0	0
TOTAL	100,748	72	0.07%	3			

66 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	103	1.0 µg/l	0
Bromate	248	10.0 µg/l	0
1,2 dichloroethane	103	3.0 µg/l	0
Nitrite (ex-water treatment works)	103	0.1 mg/l	0
<i>Clostridium perfringens</i>	70	0/100 ml	0
Enterococci	248	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	66	10.0 µg/l	0	5.0 µg/l	0
Arsenic	66	50.0 µg/l	0	10.0 µg/l	0
Boron	66	2.0 mg/l	0	1.0 mg/l	0
Copper	264	3.0 mg/l	0	2.0 mg/l	0
Lead	980	50.0 µg/l	2	25.0 µg/l ¹ 10.0 µg/l ²	2 22
Nickel	77	50.0 µg/l	0	20.0 µg/l	0
Nitrite (at consumers' taps)	2,068	0.1 mg/l	23	0.5 mg/l	0
PAH	272	0.2 µg/l	1	0.1 µg/l	1
Tetrachloroethene	264	30.0 µg/l	0	} 10.0 µg/l	0
Trichloroethene	264	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
Inspection of <i>Cryptosporidium</i> monitoring sites	Various dates throughout the year
Audit of progress with regulatory programmes of work	March 2002
Inspection of laboratory analysing for <i>Cryptosporidium</i>	September 2002
Audit of response to selected consumer complaints	September 2002
Review of the distribution system undertaking	October 2002
Inspection of two water treatment works and two service reservoirs	November 2002
Inspection of <i>in situ</i> lining of mains	November 2002
Review of plumbosolvency treatment and control programmes for lead	November 2002
Audit of analytical requirements for nitrate and nitrite	November 2002
Audit trails of ten test results	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 analytical requirements for nitrate and nitrite and plumbosolvency treatment for lead.

Incidents

The Inspectorate regarded three 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.

Two 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.

The third incident remains under investigation.

Nature of incident	No. of incidents	Assessment completed affected	Area affected	Population potentially	
Microbiological contamination of supplies	2	Yes	Rainham (August)	25	
			Roxwell (September)	7	
	1	No	Tilbury (April)	2	

Enforcement Action

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

Undertakings and other Improvement Programmes

Water treatment works and service reservoirs

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 monitor nitrate levels at Langford and install treatment if necessary. The monitoring was completed on schedule and no treatment was necessary.

No other improvement programmes were due for completion during 2002.

Distribution

The ongoing distribution system undertaking has been progressing satisfactorily. During 2002, 56 km of mains have been renovated. The Company is required to renovate a further 774 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.