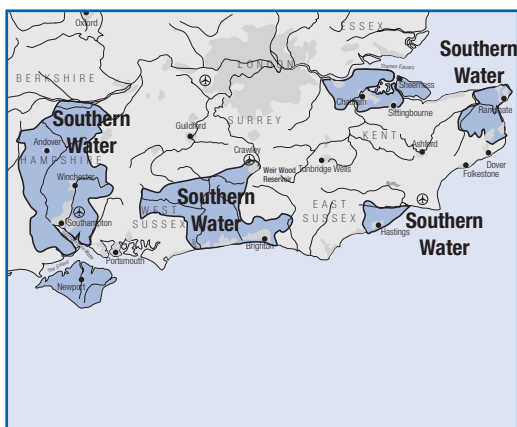


18 Southern Water Limited

Overall Water Quality supplied by Southern Water Limited in 2002

- A total of 76,658 tests were carried out on samples taken by Southern Water Limited in 2002.
- Of these tests, 99.89% complied with the Regulations.



Company Information

| | |
|---------------------------|---|
| Amount of Water Supplied: | 598 MI/d |
| Consumers Supplied: | 2.26 million |
| Areas of Supply: | Isle of Wight, and parts of Hampshire, Kent and Sussex |
| Water Composition: | 30% from rivers and reservoirs 70% from boreholes and aquifers |
| Treatment Works: | 95 |
| Service Reservoirs: | 210 |
| Km of Mains: | 13,350 |
| Water Supply Zones: | 116 |

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 76,658 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 |
|---|----------|----------|----------|
| Number of water treatment works | 95 | 95 | 96 |
| COLIFORMS | | | |
| Total number of tests | 7,367 | 7,740 | 8,614 |
| – number containing coliforms | 4 | 2 | 5 |
| – % containing coliforms | 0.05% | 0.03% | 0.06% |
| Treatment works with coliforms detected | 4 | 2 | 5 |
| – % of all works with coliforms detected | 4.21% | 2.11% | 5.21% |
| FAECAL COLIFORMS | | | |
| Total number of tests | 7,367 | 7,745 | 8,623 |
| – number containing faecal coliforms | 0 | 0 | 1 |
| – % containing faecal coliforms | 0.00% | 0.00% | 0.01% |
| Treatment works with faecal coliforms detected | 0 | 0 | 1 |
| – % of all works with faecal coliforms detected | 0.00% | 0.00% | 1.04% |

Failures of the coliforms standard at four 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, 4,067 regulatory samples for *Cryptosporidium* were taken at 11 sites. Very low numbers of oocysts were detected in 116 samples from ten sites. All results were well below the treatment standard.

Water Quality in Service Reservoirs

| | 2002 | 2001 | 2000 |
|--|----------|----------|----------|
| Number of service reservoirs | 210 | 210 | 210 |
| COLIFORMS | | | |
| Total number of tests | 10,798 | 10,922 | 10,946 |
| – number containing coliforms | 18 | 4 | 10 |
| – % containing coliforms | 0.17% | 0.04% | 0.09% |
| Service reservoirs with coliforms detected | 14 | 4 | 10 |
| Service reservoirs with coliforms detected in more than 5% of tests | 1 | 0 | 0 |
| – % of all service reservoirs with coliforms detected | 0.48% | 0.00% | 0.00% |
| FAECAL COLIFORMS | | | |
| Total number of tests | 10,798 | 10,927 | 10,969 |
| – number containing faecal coliforms | 4 | 0 | 0 |
| – % containing faecal coliforms | 0.04% | 0.00% | 0.00% |
| Service reservoirs with faecal coliforms detected | 4 | 0 | 0 |
| – % of all service reservoirs with faecal coliforms detected | 1.90% | 0.00% | 0.00% |

There has been a significant increase since 2001 in the number of service reservoirs and in the number of tests carried out on samples from service reservoirs in which total coliforms and faecal coliforms were detected. One service reservoir failed the standard for coliforms and also the standard for faecal coliforms. However, the Company has taken action to prevent the failures recurring. Failures of the faecal coliform standard at three other reservoirs were 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 | 6,355 | 14 | 0.22 | 0 | 0 | 0 | 0 |
| Faecal coliforms | 6,349 | 1 | 0.02 | 0 | 1 | 1 | 1 |
| Colour | 813 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Turbidity | 813 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Odour | 411 | 0 | 0.00 | 0 | 0 | 0 | 1 |
| Taste | 387 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Hydrogen ion | 817 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Nitrate | 966 | 0 | 0.00 | 0 | 0 | 2 | 3 |
| Nitrite | 813 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Aluminium | 813 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Iron | 907 | 0 | 0.00 | 0 | 0 | 5 | 1 |
| Manganese | 813 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Lead | 517 | 3 | 0.58 | 1 | 3 | 2 | 1 |
| PAH | 563 | 34 | 6.04 | 0 | 19 | 30 | 20 |
| Trihalomethanes | 530 | 7 | 1.32 | 7 | 3 | 0 | 1 |
| Total pesticides | 497 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Other pesticides | 4,906 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Benzo-3-4-pyrene | 563 | 0 | 0.00 | 0 | 0 | 1 | 1 |
| All others | 8,428 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| TOTAL | 36,261 | 59 | 0.16% | 8 | | | |

116 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 | 353 | 1.0 µg/l | 0 |
| Bromate | 446 | 10.0 µg/l | 1 |
| 1,2 dichloroethane | 371 | 3.0 µg/l | 0 |
| Nitrite (ex-water treatment works) | 1,727 | 0.1 mg/l | 0 |
| <i>Clostridium perfringens</i> | 107 | 0/100 ml | 0 |
| Enterococci | 474 | 0/100 ml | 1 |

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 | 116 | 10.0 µg/l | 0 | 5.0 mg/l | 0 |
| Arsenic | 116 | 50.0 µg/l | 0 | 10.0 mg/l | 0 |
| Boron | 116 | 2.0 mg/l | 0 | 1.0 mg/l | 0 |
| Copper | 471 | 3.0 mg/l | 0 | 2.0 mg/l | 2 |
| Lead | 517 | 50.0 µg/l | 3 | 25.0 µg/l ¹ 10.0 µg/l ² | 4 12 |
| Nickel | 116 | 50.0 mg/l | 0 | 20.0 µg/l | 0 |
| Nitrite (at consumers taps) | 813 | 0.1 mg/l | 0 | 0.5 mg/l | 0 |
| PAH | 563 | 0.2 µg/l | 34 | 0.1 µg/l | 0 |
| Tetrachloroethene | 471 | 30.0 µg/l | 0 | } 10.0 µg/l | 0 |
| Trichloroethene | 471 | 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 regulatory <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> | March & August 2002 |
| Inspection of two water treatment works and two service reservoirs (one site) | August & September 2002 |
| Audit of response to selected consumer complaints | September 2002 |
| Review of distribution system undertaking | September 2002 |
| Audit trails of a selection of test results | December 2002 |
| Audit of sampling arrangements | 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 operation of treatment works and service reservoirs, regulatory programmes of work, sampling arrangements and the analysis for *Cryptosporidium*.

Incidents

The Inspectorate regarded nine 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.

Seven 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.

Two incident assessments from 2002 remain under consideration.

| Nature of incident | No. of incidents | Assessment completed | Area affected | Population potentially affected |
|---|------------------|----------------------|--|---------------------------------|
| Supply of discoloured water | 1 | Yes | Wigmore & Westfield (June) | 4,300 |
| Disinfection failure | 2 | Yes | Brede (May) Burham (October) | 107,000 332,800 |
| Treatment failure | 2 1 | Yes No | Hardham (May and July) Andover (December) | 500,000 58,113 |
| Increase in Cryptosporidiosis in Southampton area | 1 | No | Southampton (November) | Information not available |
| Microbiological contamination of supplies | 1 | Yes | Fairlight (July) | 34,309 |
| Supply of water with taste & odour | 1 | Yes | Freshwater, IOW (February) | 5 |

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 undertaking was due for completion during 2002. This was to install treatment at Steyning for plumbosolvency control. The programme was substantially 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 Mile Oak and Goldstone to remove nitrate. The programmes have been delayed in part due to planning difficulties and also because the water supply currently complies with the present and future standards.

No other improvement programmes were due for completion during 2002.

Distribution

The Company had completed its distribution system improvement programme by December 2001.

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.