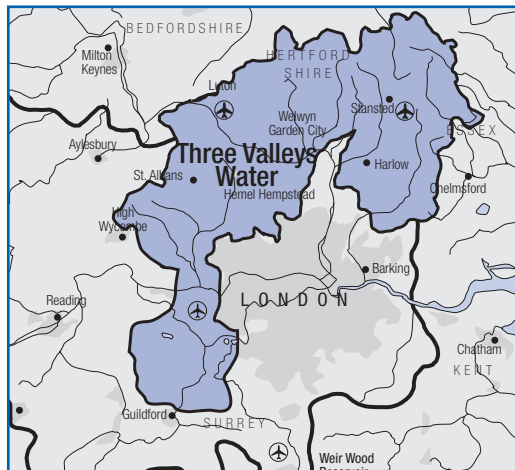


22 Three Valleys Water Plc

Overall Water Quality supplied by Three Valleys Water Plc in 2002

- A total of 76,307 tests were carried out on samples taken by Three Valleys Water Plc in 2002.
- Of these tests, 99.82% complied with the Regulations.



Company Information

| | |
|---------------------------|--|
| Amount of Water Supplied: | 896 MI/d |
| Consumers Supplied: | 2.9 million |
| Areas of Supply: | Parts of Bedfordshire, Berkshire, Buckinghamshire, Essex, Hertfordshire, Surrey, Middlesex and several London Boroughs |
| Water Composition: | 42% from rivers and reservoirs 58% from boreholes and aquifers |
| Treatment Works: | 83 |
| Service Reservoirs: | 138 |
| Km of Mains: | 13,500 |
| Water Supply Zones: | 110 |

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 76,307 tests on samples taken at water treatment works, from service reservoirs and in water supply zones and of these, 99.82% 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 | 83 | 83 | 77 |
| COLIFORMS | | | |
| Total number of tests | 9,641 | 9,788 | 7,857 |
| – number containing coliforms | 5 | 6 | 10 |
| – % containing coliforms | 0.05% | 0.06% | 0.13% |
| Treatment works with coliforms detected | 5 | 5 | 8 |
| – % of all works with coliforms detected | 6.02% | 6.02% | 10.39% |
| FAECAL COLIFORMS | | | |
| Total number of tests | 9,641 | 9,795 | 7,857 |
| – number containing faecal coliforms | 2 | 2 | 2 |
| – % containing faecal coliforms | 0.02% | 0.02% | 0.03% |
| Treatment works with faecal coliforms detected | 2 | 2 | 2 |
| – % of all works with faecal coliforms detected | 2.41% | 2.41% | 2.60% |

Failures of the coliform standard at five works and failures of the faecal coliform standard at two 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 were detected were not considered significant.

In 2002, 1,965 regulatory samples for *Cryptosporidium* were taken at six sites. Very low numbers of oocysts were detected in 26 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 | 138 | 137 | 117 |
| COLIFORMS | | | |
| Total number of tests | 6,980 | 7,038 | 5,928 |
| – number containing coliforms | 10 | 8 | 10 |
| – % containing coliforms | 0.14% | 0.11% | 0.17% |
| Service reservoirs with coliforms detected | 10 | 8 | 9 |
| 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 | 6,980 | 7,043 | 5,928 |
| – number containing faecal coliforms | 2 | 2 | 1 |
| – % containing faecal coliforms | 0.03% | 0.03% | 0.02% |
| Service reservoirs with faecal coliforms detected | 2 | 2 | 1 |
| – % of all service reservoirs with faecal coliforms detected | 1.45% | 1.46% | 0.85% |

There were no failures of the coliform standard at any of the service reservoirs. The detection of faecal coliforms at two service reservoirs were considered trivial. 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 | 7,739 | 22 | 0.28 | 0 | 0 | 0 | 0 |
| Faecal coliforms | 7,740 | 4 | 0.05 | 0 | 4 | 7 | 1 |
| Colour | 558 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Turbidity | 1,571 | 0 | 0.00 | 0 | 0 | 1 | 3 |
| Odour | 566 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Taste | 566 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Hydrogen ion | 890 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Nitrate | 974 | 3 | 0.31 | 3 | 1 | 2 | 0 |
| Nitrite | 1,002 | 75 | 7.49 | 0 | 11 | 9 | 7 |
| Aluminium | 558 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Iron | 1,782 | 6 | 0.34 | 3 | 6 | 6 | 5 |
| Manganese | 563 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Lead | 479 | 0 | 0.00 | 0 | 0 | 1 | 5 |
| PAH | 277 | 7 | 2.53 | 0 | 7 | 3 | 3 |
| Trihalomethanes | 455 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Total pesticides | 344 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Atrazine | 317 | 0 | 0.00 | 0 | 0 | 0 | 3 |
| Chlortoluron | 213 | 0 | 0.00 | 0 | 0 | 1 | 0 |
| Isproturon | 209 | 1 | 0.48 | 0 | 1 | 0 | 0 |
| Other pesticides | 3,748 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| Nickel | 122 | 2 | 1.64 | 0 | 2 | 0 | 0 |
| Oxidizability | 121 | 0 | 0.00 | 0 | 0 | 1 | 0 |
| Surfactants | 121 | 0 | 0.00 | 0 | 0 | 1 | 0 |
| All others | 10,185 | 0 | 0.00 | 0 | 0 | 0 | 0 |
| TOTAL | 41,100 | 120 | 0.29% | 6 | | | |

110 zones in 2002, 110 zones in 2001, 95 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 | 579 | 1.0 µg/l | 0 |
| Bromate | 438 | 10.0 µg/l | 2 |
| 1,2 dichloroethane | 585 | 3.0 µg/l | 0 |
| Nitrite (ex-water treatment works) | 441 | 0.1 mg/l | 1 |
| <i>Clostridium perfringens</i> | 90 | 0/100 ml | 0 |
| Enterococci | 466 | 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 | 161 | 3.0 mg/l | 0 | 2.0 mg/l | 0 |
| Lead | 481 | 50.0 µg/l | 0 | 25.0 µg/l ¹ 10.0 µg/l ² | 1 10 |
| Nickel | 122 | 50.0 µg/l | 2 | 20.0 µg/l | 3 |
| Nitrite (at consumers' taps) | 1,002 | 0.1 mg/l | 75 | 0.5 mg/l | 0 |
| PAH | 277 | 0.2 µg/l | 7 | 0.1 µg/l | 0 |
| Tetrachloroethene | 461 | 30.0 µg/l | 0 | } 10.0 µg/l | 0 |
| Trichloroethene | 462 | 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 |
| Inspection of laboratory analysing for <i>Cryptosporidium</i> | January & April 2002 |
| Audit of progress with regulatory programmes of work | March 2002 |
| Inspection of one water treatment works and one service reservoir | September 2002 |
| Audit of sampling arrangements | September 2002 |
| Audit of response to selected consumer complaints | October 2002 |
| Review of distribution system undertaking | October 2002 |
| Review of plumbosolvency treatment and control programmes of work for lead | December 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 audit trails, *Cryptosporidium* analysis, the operation of treatment works, sampling arrangements, the distribution system undertaking and plumbosolvency treatment for lead.

Incidents

The Inspectorate regarded six 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 Three Valleys Water has taken appropriate remedial action. A number of recommendations were made regarding sampling and other procedures.

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

| Nature of incident | No. of incidents | Assessment completed | Area affected | Population potentially affected |
|---|------------------|----------------------|--|---------------------------------|
| Failure of disinfection at the works | 1 | Yes | Egham water treatment works (May) | 250,000 |
| Microbiological contamination of supplies | 4 | Yes | Harrow Park (February) Hatfield (August) Warren Field, Epping (August) North Wield, Essex (September) | 15,700 16,250 43 48 |
| Supply of water with taste & odour | 1 | Yes | Woodham (September) | 2 |

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

Five 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 Dunmow to remove chlorinated solvent and at Chertsey, Egham, Essendon, Iver and Walton to remove bromate. The programmes of work were completed on schedule except for Iver where, because water leaving the works complies with the new standard, the proposed solution was not implemented.

Seven statements of intent to reduce the risk of *Cryptosporidium* breaching the treatment standards were due for completion during 2002. Five programmes were completed on schedule, the other two were delayed for reasons outside the company's control.

No other improvement programmes were due for completion during 2002.

Distribution

The ongoing distribution system undertaking has been progressing satisfactorily. During 2002, 71 km of mains have been renovated. The Company is required to renovate a further 288 km of mains by December 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.