LONDON WIDE
DRINKING WATER SURVEY
2002/2003

City of Westminster

Prepared by
Severn Trent Laboratories Ltd

In conjunction with
The Association of London Chief Environmental Health Officers

Severn Trent Laboratories
STL Bridgend
2 Technology Drive
Bridgend Science Park
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CF31 3NA

May 2003
City of Westminster

Summary of Results

In total 12 samples were taken from consumer taps in the period from April 2002 to March 2003 for compliance with water quality standards in the Water Supply (Water Quality) Regulations 1989 and the EC Directive 80/778/EEC. Eleven of the samples submitted were for the reduced list of parameters (Appendix I) and one was for the full list of parameters (Appendix II).

Westminster is served by Thames Water Utilities Limited whose water supplies are derived from chalk bore-holes and by Thames Water Utilities Limited, the sources of which are predominantly storage reservoirs, although some underground supplies are used.

Of a total of 525 chemical and 82 microbiological determinands 100% compliance was obtained (Figure 1a).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Target Compliance Level</th>
<th>Level Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Determinands</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total Coliforms</td>
<td>95.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Escherichia coli</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Faecal Streptococci</td>
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</tr>
<tr>
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<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

The quality of water assessed from individual outlets in the City of Westminster achieved compliance levels required by legislation governing the bacteriological quality of drinking water for all the parameters tested.
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INTRODUCTION

Since the privatisation of the water companies back in 1989, the task has been to implement some stringent European directives on drinking waters and to meet new limits on pesticides.

The drive to obtain ever-cleaner drinking water continues, with lower detection limits being introduced in the New Water Supply (Water Quality) Regulations for England 2000. These new regulations have already seen the introduction of *Cryptosporidium* monitoring.

The next significant phase is the provisions for the new standards, which come into effect 25th December 2003. The 2000 Regulations show 39 mandatory parameters required for monitoring as opposed to the 56 currently stipulated. In addition, there are 12 non-mandatory indicator parameters. Several of the 39 mandatory parameters however have tightened permitted concentration values as compared with those in the 1989 regulations. These include:

- **Benzene**
  - PCV 1µg/l (new determinant)
- **Bromate**
  - PCV 10µg/l (new determinant)
- **1,2 Dichloroethane**
  - PCV 3µg/l (new determinant)
- **Copper**
  - PCV 2mg/l
- **Lead**
  - PCV 25µg/l; 10µg/l BY 2013
- **Nickel**
  - PCV 20µg/l
- **Arsenic**
  - PCV 10µg/l
- **Boron**
  - PCV 1mg/l
- **Aldrin, dieldrin, heptaclor and heptachlor epoxide**
  - PCV 0.03µg/l
- **Total PAHs**
  - PCV 0.1µg/l
- **Tetrachloroethene & Trichloroethene**
  - PCV 10µg/l

As can be seen above, with the supply of Drinking Water constantly being driven by legislation, improvements in quality will continue to be made.

Committed to excellence, STL have continued to improve levels of service to customers. This has resulted in operational efficiencies, the benefits of which have been passed on to clients. STL Bridgend has successfully maintained a service to all its clients with deliverance of analytical results meeting >98% turn round time compliance.

STL aim to continue to make further improvements so as to grow the business to remain the Market Leader within the UK providing efficient and improved services to our customers.
LONDON WIDE DRINKING WATER SURVEY 2002-2003

STL were re-appointed to undertake the analytical work for this year’s annual survey. This was based upon its technical competence, analytical quality and continuity of results from previous year’s surveys.

The analytical work was performed at STL Bridgend site. The laboratory accredited under the United Kingdom Accreditation Service (UKAS) to 17025 has also DWTS accreditation during.

Twenty-six Boroughs and District Councils participated in the 2002-2003 survey (Figure 1). The water supply areas are shown in Figure 2.

A similar programme to the 2001-2002 survey was adopted with samples being collected from the designated collection points on a specific day each month.

Results were reported on a monthly basis to each participating borough or district council.

This document reports results in a similar format adopted by the DWI, where compliance with the Water Supply (Water Quality) Regulations is assessed by determinand.
INTERPRETATION OF CHEMICAL RESULTS

The purpose of this survey is to provide the participating boroughs and district councils with water quality information. This is to continue to assist in their legal obligation to check the "wholesomeness and sufficiency" of water supplies provided to premises in their area.

Overall, the general quality appears to have been maintained throughout the 2002-2003 survey when compared with results from previous years (Figure 21) with a compliance figure of 99.88%.

The major cause of the chemical non-compliance was again nitrite, with six samples exceeding the standard from 254 samples tested. This shows a similar trend of nitrite exceedance from last year's survey where 7 samples exceeded the standard.

In summary, the water quality of samples tested has been maintained to a high standard.

The DWI is however still requiring those standards are maintained and further improved where applicable.

STL have tested the samples in accordance with the DWI regulations and have seen results that reflect those found by the water providers within the geographical areas tested.
SUMMARY OF CHEMICAL RESULTS

In total 254 samples were taken from consumer taps in the period April 2002 until March 2003 and analysed for chemical compliance with the Water Supply (Water Quality) Regulations.

Overall 99.88% of the 12,271 chemical determinands complied with the quality standards as set out in the regulations (Figure 3). Fifteen determinands exceeded the permitted concentration values (PCV) as specified in these regulations.

The major cause of chemical non-compliance was nitrite (Figure 4) with six samples exceeding the PCV of 0.1mg/l for this determinand.

Two samples exceeded the PCV for iron of 200µg/l. Two samples exceeded the PCV for Kjeldahl Nitrogen of 1mg/l. Two samples exceeded the PCV for total polyaromatic hydrocarbons of 0.2µg/l. Isolated breaches were also recorded for turbidity, total hardness and total hydrocarbons.

The mean concentrations however of all regulatory parameters monitored were well below the quality standards as set out in the regulations.

Overall 99.89% of the 1768 microbiological parameters complied with the regulations, with two exceedances occurring due to the presence of Total coliforms.

In general the water samples tested gave compliance results similar to those stated in the DWI report for the Thames Water Utilities Ltd.
SUMMARY OF MICROBIOLOGICAL RESULTS

The microbiological quality of waters examined during the London wide Drinking Water Survey of 2002-2003 achieved compliance levels for all parameters (Figure 16).

An overall summary of results for all the boroughs tested is given in the table below:

Percentage microbiological compliances obtained during the 2002-2003 survey:

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The Water Supply (Water Quality) Regulations 2000 Part II Section 3 (6) requires compliance of all microbiological parameters with Table C, excepting Total Coliforms, where the water is not considered unwholesome provided 95% of analysis is in accordance where more than 50 samples are taken in one zone. Where less than 50 samples have been taken, then compliance in 48 of the last 50 samples is required.

The results for this year survey shows a similar overall percentage achieved for coliforms as for previous years. This is primarily due to a small number of sporadic failures.
CONCLUSIONS AND RECOMMENDATIONS

In conclusion to the twelfth survey, 99.88% of chemical determinands tested complied with the standards as laid down in the Water Supply (Water Quality) Regulations 2000.

In the twelve years that the survey has been conducted by STL there has been an initial trend showing generally a significant improvement in the percentage compliance, with this percentage now beginning to level off at between 99.8% and 99.9% compliance. This is consistent with results obtained by the water companies supplying the water to the boroughs.

This survey is complimentary to the information available to the local authorities from the water undertakers and gives a good indication of the quality of drinking water supplied in the London area.

It is recommended that the liaison between the water supplier and local authority be continued on a frequent basis.

It is also recommended that, wherever possible, the survey continues on a monthly basis so that an independent assessment of the water quality can be obtained.